Fast Ethernet Switch

ES-2310Q:

10-Port L2 Managed Fast Ethernet Switch with 2 100Base-FX Ports

Key Features

- **Standard compliance**
  - ---IEEE 802.3 10Base-T
  - ---IEEE 802.3u 100Base-TX
  - ---IEEE 802.3x Flow Control Capability
  - ---ANSI/IEEE 802.3 Auto-negotiation
  - ---IEEE 802.1q VLAN
- **RoHS Compliance**
- **Subscriber Interface**
  - ---1-8 10/100Mbps Fast Ethernet ports.
  - ---9,10 are Fast Ethernet Fiber ports with SEP module
  - ---Auto-Negotiation and Auto-MDIX
  - ---Back pressure flow control for half duplex.
  - ---IEEE 802.3x flow control for full duplex
  - ---Connector: 8 ports RJ-45 and 2 ports Fiber (SEP)
- **Performance**

Switching capacity:

- ---Non-blocking switch fabric supports up to 8 FE+2 SEP ports
- ---8 K MAC addresses
- ---256K packet buffer and 128K control memory

VSM(Virtual Stacking Management)

- ---Supports 16 devices stacking
- ---Multiple switches can be managed via one IP address, just like software stacking
- ---Low cost and easily to establish network environment, not extra hardware require
- ---Not center on the physical location of wiring closets
- ---In tag-base VLAN, supports egress/ ingress packet filter
- ---Q-in-Q is an efficient method for enabling Subscriber Aggregation

QoS

- ---Port Based (VIP Port), 802.1p , TOS and Diffserv(IPv4/IPv6) based QoS packet classification
- ---Supports four level priority queues to prioritize in-bound and out-bound traffic

Benefits

- **QoS with four priority queues**
  The QoS(Quality Of Service) feature provides four internal queues to support four different classifications of traffic. High priority packet streams experience less delay inside the switch, which supports lower latency for certain delay-sensitive traffic. The ES-2310Q can classify the packet as one of the four priorities according to vip port, 802.1p priority tag, DiffServ and/or IP TOS. The QoS operate at full wire speed. The actual scheduling at each egress port can be based upon a strict priority, weighted round robin or a mix of both.
- **Port Mirroring**
  This mechanism helps track network errors or abnormal packet transmission without interrupting the flow of data. Allow ingress traffic to be monitored by a single port that is defined as mirror capture port. The mirror capture port can be any 10/100 port, 10/100/1000 port. Mirroring multiple ports is possible but can create congestion at the mirror capture port.
- **Q-in-Q VLAN for performance & security**
  The VLAN feature in the switch offers the benefits of both security and performance. VLAN is used to isolate traffic between different users and thus provides better security. Limiting the broadcast traffic to within the same VLAN broadcast domain also enhances performance. Q-in-Q, the use of double VLAN tags is an efficient method for enabling Subscriber Aggregation. This is very useful in the MAN.
- **Isolated Group, provides protection for certain ports**
  The isolated group feature allows certain ports to be designated as protected. All other ports are non-isolated. Traffic between isolated group members is blocked.
  Traffic can only be sent from isolated group to non-isolated group.
- **Mac-based 802.ad LACP with automatic link fail-over**
  Dynamic fail-over means packets will not get assigned to any trunk member port that has failed. If one of the ports were to fail, traffic will automatically get distributed to the remaining active ports.
- **802.1x Access Control improves network security**
  802.1x features enable user authentication for each network access attempt. Port security features allow you to limit the number of MAC addresses per port in order to control the number of stations for each port. Static MAC addresses can be defined for each port to ensure only registered machines are allowed to access. By enabling both of these features, you can establish an access mechanism based on user and machine identities, as well as control the number of access stations.
- **802.1d Compatible & 802.1w Rapid Spanning Tree**
  For mission critical environments with multiple switches supporting STP, you can configure the switches with a redundant backup bridge path, so transmission and reception of packets can be guaranteed in event of any fail-over switch on the network.

Fast Ethernet Switch

---Supports two scheduling, WRR and Strict
---Supports priority in a Q-in-Q tag

Bandwidth Control
---Supports bandwidth rating per port ingress and egress rate limit 1000Mbps with 1Mbps increment

Broadcast Storm
---Multicast/Broadcast/Unknown-Unicast Storm suppression.

Transmission Mode
---10/100Mbps support full or half duplex

Transmission Speed
---10/100Mbps for TP and 100Mbps for Fiber

Port Mirroring
---Support 1: N RX port mirroring
---Supports port sniffer function with 3 modes:
(TX Monitor Mode, RX Monitor Mode and TX-RX pair Monitor Mode)

Isolated Group
---Provide one group allows certain ports to be designated as protected

Restricted Group
---Can decide the direction of transmitting packets for the specific port

- **Protocol**

LACP
---2 Fast Ethernet +1 Gigabit Ethernet groups
---Per-group max 4 member
---Provides DA, SA and DA+SA Mac-based trunking with automatic link fail-over

GVRP/GARP
---802.1q with GVRP/ GARP

Multicasting
---Supports IGMP snooping including active and passive mode

STP/RSTP
---802.1d/1w

- **Network Security**

---802.1x access control
---Isolated group
---Restricted group
---Management Access Policy Control
---Static mac, to limit which mac addresses can pass through or not
---Mac addresses learning limit, to set up the maximum amount of mac that each port can learn

- **Snmpv1,v2c Network Management**
  - RFC 1213 MIB (MIB-II)
    - Interface MIB
    - Address Translation MIB
    - IP MIB
    - ICMP MIB
    - TCP MIB
    - UDP MIB
    - SNMP MIB

- **Broadcast/Multicast/unknown-unicast Storm Control**

To limit too many broadcast/multicast/unknown-unicast flooding in the network, broadcast/multicast storm control is used to restrict excess traffic. Threshold values are available to control the rate limit for each port. Packets are discarded if the count exceeds the configured upper threshold.

Technical Specifications

- **LED Description**

	LED	Color	Function
Global	POWER	Green	-Lit when +5V power is coming up
Global	CPU	Green	-Blinks when CPU is active
Port 1-8	LINK/ACT	Green	-Lit when connection with remote device is good -Blinks when any traffic is present
Port 1-8	10/100 Mbps	Green /Amber	-Lit Green when TP link on 1000Mbps speed -Off when 10Mbps or no link occurs
Port 9,10	SEP	Green	- Lit when SEP connection with remote device is good -Blinks when any traffic is present

- **Network Interface**

Category	Connector	Transmission	Max. Cable Length	Wavelength
10-T/ 100-TX	RJ-45	Full/Half Duplex	100M	/
100-FX (M-M)	SC/ST	Full/Half Duplex	2Km 50/125μ	1310nm
100-FX (S-M)	SC	Full/Half Duplex	5/20/60Km 9/125μ	1310nm
100-FX (S-M)	Bidi-SC	Full/Half Duplex	20Km 9/125μ	1310nm 1550nm

- **Full Forwarding Packet Rate:** PPS (64 Bytes packets per second)

Forwarding Rate	Speed
14,880PPS	10Mbps
148,800PPS	100Mbps

- **Cable and Maximum Length**

Feature	Detailed Description
TP	Cat. 5 UTP cable, up to 100m
100Base-FX SC/ST M-M	Up to 2Km
100Base-FX SC S-M	Single-Mode Fiber, up to 5/20/60Km
100Base-FX WDM SC S-M	Single Fiber, BiDi 20Km

- **Hardware Spec**

Feature	Detailed Description
Voltage	100~240 VAC
Frequency	50~60 Hz
Consumption	8.9W
Ambient Temperature	0 to 40℃
Humidity	5% to 90%
Dimensions	44(H) x 220(W) x 130.5(D) mm
Safety	Comply with FCC Part 15 Class A & CE Mark Approval

Fast Ethernet Switch

- RFC 1757 RMON MIB
  - Statistics Group 1
  - History Group 2
  - Alarm Group 3
  - Event Group 9
- RFC 1493 Bridge MIB
- RFC 1643 Ethernet MIB
- Enterprise MIB

Overview

ES-2310Q is a Managed Fast Ethernet switch that supports SNMP, Web UI and CLI management interface and with 8 ports 10/100Base-TX (RJ-45 connectors) and 2 ports 100Base-FX (SEP). It is a standard switch that meets all IEEE 802.3/u/x/z Gigabit, Fast Ethernet specifications. In addition, the switch implements the QoS (Quality of Service), VLAN, Mac Filtering Policy, Port Mirror, VLAN and full L2 protocols. It has a rich feature set suitable for streaming VoIP, video, and data traffics for multimedia applications.
In this switch, Port 9, 10 support 2-port 100Base-FX ports(SEP) , and the 2-port fiber is used 2 slots for removable SEP module supporting, they are 100Base-FX fiber module.

Ordering Information

ES-2310Q:
10-Port L2 Managed Fast Ethernet Switch with 2 100Base-FX Ports

- **Optional SEP Fiber Module**

FM-SEP.SC	SEP, FE SC Multi-Mode Fiber Module 1310nm
FM-SEP.SC.S05	SEP, FE SC Single-Mode 5km Fiber Module 1310nm
FM-SEP.SC.S20	SEP, FE SC Single-Mode 20km Fiber Module 1310nm
FM-SEP.SC.S40	SEP, FE SC Single-Mode 40km Fiber Module 1310nm
FM-SEP.SC.S60	SEP, FE SC Single-Mode 60km Fiber Module 1310nm
FM-SEP.BS5.S20	SEP, FE BiDi SC 20km Module Single Fiber 1550nm, Type 1
FM-SEP.BS3.S20	SEP, FE BiDi SC 20km Module Single Fiber 1310nm, Type 2

Ruby Tech Corp.
2F, No.7, Lane 50, Nan Kang Road, Sec.3, Taipei, Taiwan
TEL:886-2-2785-3961 FAX:886-2-2786-3012
http://**www.rubytech.com.tw**
E-mail : rubytech@mail.rubytech.com.tw